--Figure 3 shows an alignment of TdPI (SEQ ID NO:2) with Kunitz domains of the bovine colostrum trypsin inhibitor (SEQ ID NO:3) (BovCol; Cechova, 1976), (bovine) aprotinin (SEQ ID NO:5) (Creighton & Charles, 1987), and the rat tissue factor pathway inhibitor (SEQ ID NO:4) (TFPI-2; only the second, factor Xa-inhibiting domain is shown; Enjyoji *et al.*, 1992). The Kunitz domains of the tick anticoagulant peptide TAP (SEQ ID NO:6) (Waxman *et al.*, 1990) and the two domains in ornithodorin (ornith1 (SEQ ID NO:7) and ornith2 (SEQ ID NO:8); Van de Locht *et al.*, 1996) are also included. The alignment of TdPI with the vertebrate Kunitz domains was created using GCG's "pileup" and "prettyplot" commands, choosing relatively low gap and length weights (1 and 0.03, respectively). The alignment was then modified, mainly by introducing extra gaps, so that the TAP and ornithodorin domains could be included. The modification was largely based on the alignment of the latter domains with aprotinin, as reported by Van de Locht *et al.*, 1996. The arrow indicates the P1 residue of the aprotinin binding loop. The asterisks denote the cysteines involved in disulphide-bridge formation in traditional Kunitz domains.--

IN THE CLAIMS:

Please amend Claims 1, 3, 4, 7, 10-14, 16-24, 27, and 29-33 as follows:

1. (Amended) A recombinant protein that exhibits significant sequence homology with the tick-derived protease inhibitor protein (TdPI) sequence set forth in SEQ ID NO:2, an active fragment of said protein or a functional equivalent of said protein.

3. (Amended) A recombinant protein, protein fragment or functional equivalent according to claim 1 that contains one or more epitopes that can be used in the development of vaccines that target proteins that exhibit significant sequence homology with TdPI.

4. (Amended) A recombinant protein or protein fragment according to claim 1, wherein said sequence homology is defined as 50% or more of the amino acids in the sequence being

completely conserved as identical residues if the protein is aligned with the sequence of SEQ ID NO:2, the alignments being obtained using GCG's bestfit command (gap creation penalty = 2.5; gap extension penalty = 0.5).

7. (Amended) A recombinant protein or protein fragment according to claim 1 comprising the TdPI sequence.

10. (Amended) A recombinant protein, protein fragment or functional equivalent according to claim 8 that contains one or more epitopes that can be used in the development of vaccines that target proteins that exhibit significant sequence homology with TdPI.

11. (Amended) A recombinant protein or protein fragment according to either of claims 1 or 8 that inhibits tryptase with a Ki of less than 1×10^{-6} M, preferably less than 1×10^{-7} M, more preferably less than 2×10^{-8} M, most preferably less than 1×10^{-9} M.

12. (Amended) A recombinant protein, protein fragment or functional equivalent according to either of claims 1 or 8 that inhibits catalytic tryptase activity.

13. (Amended) A recombinant protein, protein fragment or functional equivalent according to either of claims 1 or 8 which inhibits mast cell tryptase, preferably human mast cell tryptase.

14. (Amended) A recombinant protein, protein fragment or functional equivalent according to claim 1, that is derived from a tick.

16. (Amended) A recombinant protein, protein fragment or functional equivalent according to either of claims 1 or 8 that has been genetically or chemically fused to one or more peptides or polypeptides.

17. (Amended) A recombinant protein, protein fragment or functional equivalent according to either of claims 1 or 8 that is bound to a support, such as a resin.

18. (Amended) A pharmaceutical composition comprising a recombinant protein, protein fragment or functional equivalent according to either of claims 1 or 8, in conjunction with a pharmaceutically-acceptable carrier.

19. (Amended) A vaccine composition comprising a recombinant protein, protein fragment or functional equivalent according to either of claims 1 or 8, optionally in conjunction with an adjuvant.

20. (Amended) A process for the formulation of a pharmaceutical composition according to claim 19 comprising bringing said recombinant protein, protein fragment or functional equivalent into association with a pharmaceutically-acceptable carrier.

21. (Amended) A recombinant protein, protein fragment or functional equivalent according to either of claims 1 or 8 for use as a pharmaceutical.

22. (Amended) A method for the prevention or treatment of a disease in a subject, comprising administering to said subject an effective dose of a composition according to claim 18.

23. (Amended) A nucleic acid molecule encoding a recombinant protein, protein fragment or functional equivalent according to claim 1.

24. (Amended) A nucleic acid molecule having the sequence set forth in SEQ ID NO:1; which hybridises with said nucleotide sequence under stringent hybridisation conditions; or which encodes on expression a recombinant protein, protein fragment or functional equivalent as defined in claim 1.

27. (Amended) A host cell transformed or transfected with the vector of claim 25.

29. (Amended) A method of preparing a recombinant protein, protein fragment or functional equivalent, comprising expressing a vector according to claim 25 or claim 26 in a host cell and culturing said host cell under conditions where said recombinant protein, protein fragment or functional equivalent is expressed, and recovering said recombinant protein, protein fragment or functional equivalent thus produced.

30. (Amended) A method for the detection or quantification of tryptase in a sample to be tested, comprising contacting said sample with a kit comprising at least one recombinant protein, protein fragment or functional equivalent according to claim 1, and other reagents for detection.

31.(Amended) A method for the treatment of inflammation in humans or animals comprising administering a therapeutically effective amount of a recombinant protein, protein fragment or functional equivalent according to claim 1.

32. (Amended) A method of vaccinating a mammal against a disease, or of treating a mammal suffering from a disease, comprising administering a recombinant protein, protein fragment or functional equivalent according to claim 1 to a said mammal.

33. (Amended) A tryptase inhibitor comprising a protein or protein fragment selected from the group consisting of bovine colostrum trypsin inhibitor, the rat tissue factor pathway inhibitor (TFPI-2), the Kunitz domain of the tick anticoagulant peptide TAP and the two domains in omithodorin.

Please add the following new Claims 34-39 as follows:

--Claim 34. A method for the prevention or treatment of a disease in a subject, comprising

administering to said subject an effective dose of a composition according to claim 19. --

--Claim 35. A host cell transformed or transfected with the vector of claim 26.--

--36. A method for the depletion or removal of tryptase from a food product or from a cell culture comprising contacting the food product or cell culture with a quantity of a recombinant protein, protein fragment or functional equivalent according to claim 1.--

--37. The method of claim 36 wherein said recombinant protein, protein fragment or functional equivalent is bound to a support.--

--38. An anti-tryuptase agent comprising a recombinant protein, protein fragment or functional equivalent according to claim 1.--

--39. An anti-inflammatory agent comprising a recombinant protein, protein fragment or functional equivalent according to claim 1.--